IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re PATENT application of:

Applicant(s):	Hans Adams et al.
Serial No:	10/598,963
Filing Date:	September 15, 2006
Title:	QUICK-OPERATING VALVE
Examiner:	Tien Hung Mai
Art Unit:	2836

Docket No. VKSWP0102US

APPEAL BRIEF

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

The undersigned submits this brief for the Board's consideration of the appeal of the Examiner's decision, mailed August 2, 2010, finally rejecting claims 1-3 and 5-9 in the above-identified application.

The fee for filing an appeal brief is being paid herewith. In the event an additional fee is necessary, the Commissioner is authorized to charge any additional fee which may be required to Deposit Account No. 18-0988 under the above shown Docket No..

I. Real Party in Interest

The real party in interest in the present appeal is Erben Kammerer AG.

II. Related Appeals and Interferences

Neither appellant nor appellant's legal representative are aware of any appeals or interferences which will directly affect, which will be directly affected by, or which will have a bearing on the Board's decision in the pending appeal.

III. Status of Claims

Claims 1-3 and 5-9 are pending and claim 4 has been cancelled. Claims 1-3 and 5-9 stand rejected and are the claims on appeal. A correct copy of these claims is reproduced in the Claims Appendix.

IV. Status of Amendments

No amendments have been filed subsequent to the issuance of the final Office Action dated August 2, 2010, from which this appeal is taken.

V. Summary of Claimed Subject Matter

The following is a concise explanation of the subject matter defined in each of the independent claims involved in the appeal, which refers to the specification by page and line number in brackets, and to the drawing by reference characters.

Claim 1

1. A quick-acting valve (18), comprising:

a valve opening (22) [4/9-11],

a valve member (21) movable relative to the valve opening for controlling flow through the valve opening [4/9-11],

a coil (19) supplied by a voltage source (25) for effecting movement of the valve member relative to the valve opening [4/13],

a voltage-dependent resistor (33) provided between the voltage source (25) and the coil (19) [4/25-28], and

an auxiliary voltage source (35) connected in parallel to the coil (19), the voltage of said auxiliary voltage source (35) being opposite to that of said voltage source (25) [4/29],

wherein the voltage-dependent resistor (33) includes a plurality of electronic switches (37-39) connected in series in the form of a cascade, said electronic switches (37-39) each bridging a series resistor (41) and being driven into the closing state when an input voltage applied by said voltage source (25) falls below a given switching voltage whereby the electronic switches (37-39) are driven simultaneously into the closing state [5/1-25].

Claim 6

6. A quick-acting valve comprising:

a valve opening (22) [4/9-11],

a valve member (21) movable relative to the valve opening for controlling flow through the valve opening [4/9-11],

a coil (19) supplied by a voltage source (35) for effecting movement of the valve member relative to the valve opening [4/13],

a voltage-dependent resistor (33) provided between the voltage source and the coil [4/25-28], and

an auxiliary voltage source (35) connected in parallel to the coil, the voltage of said auxiliary voltage source being opposite to that of said voltage source [4/29],

wherein the voltage-dependent resistor includes a plurality of electronic switches (37-39) connected in series in the form of a cascade, said electronic switches each bridging a series resistor (41) and being driven into the closing state when an input voltage applied by said voltage source falls below a given switching voltage [5/1-25], and

wherein each electronic switch is switched by an auxiliary transistor (43-45) [5/20-25].

VI. Grounds of Objection/Rejection to Be Reviewed on Appeal

A. Claims 1 and 5 stand rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,998,177 ("Takizawa") in view of US 4,291,358 ("Dettmann") and US 5,164,872 ("Howell").

B. Claims 2 and 3 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa in view of Dettmann and Howell, and further in view of US 4,705,322 ("Yiannoulos").

C. Claims 6 and 9 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa in view of Dettmann.

D. Claims 7 and 8 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa in view of Dettmann, and further in view of Yiannoulos.

VII. Argument

The rejections advanced by the Examiner are improper and should be reversed for at least the following reasons.

A. Rejection of Claim 1 and 5

Claims 1 and 5 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa in view of Dettmann and Howell.

Claim 1

The Examiner's remarks in support of the rejection of claim 1 are as follows:

> Regarding claim 1, Takizawa discloses electromagnetic solenoid drive apparatus, the apparatus (fig. 1) comprising:
>
> a coil (22) supplied by a voltage source (1),
>
> a voltage-dependent resistor (23, 24, 28 and 30) provided between the voltage source the coil, and
>
> an auxiliary voltage source (27) connectedd in parallel to the coil, the voltage of said auxiliary voltage source being opposite to that of said voltage source in reversal voltage event,
>
> wherein the voltage-dependent resistor includes a plurality of electronic switches (28 and 30) connected in series in the form of a cascade, said electronic switches each bridging a series resistor (23 and 24) and being driven into the closing state when an input voltage applied by said voltage source falls below a given switching voltage (when the voltage source is below 12 volts) (col. 4, line 56 - col. 5, line 2).

Takizawa does not explicitly disclose the electronic switches are driven simultaneously into the closing state. Howell discloses a voltage-dependent resistor including a plurality of electronic switches (30 and 70) connected in series in the form of a cascade, said the electronic switches bridging a voltage-dependent device (42), wherein the electronic switches are driven simul1taneously into closing state by a control circuit (36) via signal line (38) (see fig. 5). However, Takizawa's solution works properly only with DC power supply. If the solenoid requires AC power supply Takizawa's solution should be modified with Howell's solution which capable of driving AC current. In the Howell's circuit, the combination of two electronic switches (30 and 70 in fig. 5) can efficiently control the AC current while both electronic switches are driven by the same control signal (38). When the circuit of Takizawa may be modified by replacing each one of driving transistor (28 and 30) directionally switch according to Howell. In the obtained circuit each of the electronic switches of Howell bridging a series resistor. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the solenoid drive circuit of Takizawa because suggested of modification of Takizawa according to Howell will allow driving the solenoid by AC current when the solenoid requires AC current.

Takizawa does not explicitly disclose the electromagnetic solenoid drive apparatus for a valve; rather it is for auto-door lock device. Dettmann discloses magnetic valve (fig. 2) with electronic control (fig. 1) comprising a valve opening, a valve member movable (7-9) relative to the valve opening for controlling flow through the valve opening, a coil (AE) supplied by a voltage source (3 and 4} for effecting movement of the valve member relative to the valve opening. The claim would have been obvious because market forces provide a reason to make an adaptation of the Takizawa solenoid drive modified according to teachings of Dettmann magnetic valve, since it would expand a market niche for the manufacturers of such system, and such application resulted from use of the prior knowledge in a predictable manner will bring quite predictable results. According to the Supreme Court decision, When a work is available in one field of endeavor, design incentives and other market forces can prompt

variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a persion of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. See *Sakraida v. Ag Pro,* 425 U.S. 273, 189 USPQ 449 (1979) or *Anderson's-Black Rock Inc. v. Pavement Salvage Co.,* 396 U.S. 57,163 USPQ 673 (1969).

First Clear Error

Initially it is noted the base reference, Takizawa, is non-analogous are. Takizawa has nothing to do with a quick-acting valve. Instead, Takizawa is concerned with an electromagnetic solenoid drive apparatus for use in a vehicle for turning on an electromagnetic solenoid from a battery every time when a command switch is turned on (see Abstract). Consequently, Takizawa is not in the field to which claim 1 relates, i.e. a quick-acting valve comprising, inter alia, a valve opening and a valve member movable relative to the valve opening for controlling flow through the valve opening.

Thus, in order to be considered as art vis-a-vis the quick-acting valve of claim 1, Takizawa must logically commend itself to an inventor's attention when considering the invention as a whole. Takizawa does not address any problem relating to quick-acting valves and consequently the skilled person would not look to Takizawa as a base reference to modified in some manner giving rise to the quick-acting valve of claim 1.

The Examiner does acknowledge that "Takizawa does not explicitly disclose the electromagnetic solenoid drive apparatus for a valve; rather it is for auto-door lock

device." The Examiner turns to Dettmann for disclosure of a magnetic valve with electronic control.

The Examiner contended "[t]he claim would have been obvious **because market forces provide a reason to make an adaptation** of the Takizawa solenoid drive modified according to teachings of Dettmann magnetic valve, since **it would expand a market niche for the manufacturers of such system**, and such application resulted from use of the prior knowledge in a predictable manner will bring quite predictable results." (emphasis added)

First, the stated basis for the combination in incomprehensible. What market niche would be expanded? What market forces purport to provide a reason for the combination?

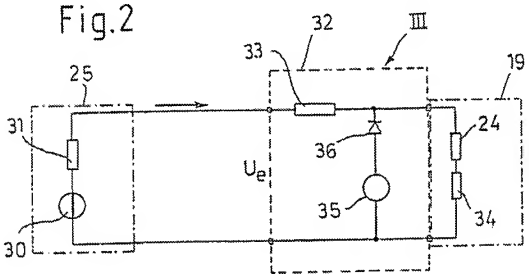
Second, the Examiner has provided absolutely NO evidence of the "market forces" to which the Examiner refers, nor any evidence of a market niche that would be expanded. Consequently, the rejection is devoid of any evidence supporting the Examiner's conclusion of obviousness.

The addition of Howell does not cure the above deficiencies. Howell, like Takizawa, has not been found to have anything to do with a quick-acting valve. Howell instead provides an arrangement for arcless interruption of a-c load current in response to a current interruption command.

Therefore, the rejection of claim 1 is fatally flawed for above reasons.

Second Clear Error

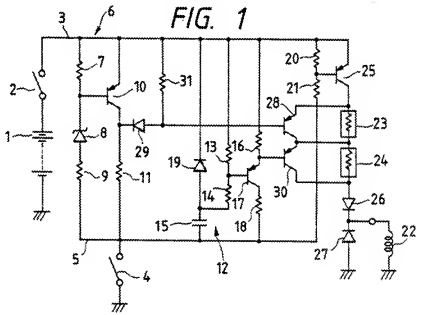
The combination of Takizawa, Howell and Dettmann does not result in the claimed invention. More specifically, claim 1 recites a voltage source, and an auxiliary voltage source connected in parallel to the coil, the voltage of the auxiliary source being opposite to that of the voltage source. Fig. 2 of the present application (reproduced below) illustrates the voltage source 25 (which includes voltage generator 30 and resistor 31) and auxiliary voltage source 35.



In rejecting claim 1, the Examiner, referring to Fig. 1 of Takizawa (reproduced below), identifies the diode 27 (or possibly signal common) as the "auxiliary voltage source", but does not expressly identify the "voltage source". Presumably, the voltage source in Takizawa is the battery 1 (or some voltage derived from the battery 1).

With reference to Fig. 1 of Takizawa, the battery 1 is a 12 volt DC battery (e.g., a car battery), which is connected with its negative terminal to chassis ground. Thus, absent some inversion of the battery voltage from the positive terminal, any voltage in the circuit of Fig. 1 will be a non-negative voltage relative to chassis ground. No inversion circuitry is found in the circuit of Fig., 1 and thus all voltages in the circuit of Fig. 1 are presumed to be non-negative voltages.

FIG. 1



As can be seen in Fig. 1 of Takizawa, the diode 27 (i.e., the alleged auxiliary voltage source) has its anode coupled to chassis ground, and its cathode coupled to coil 22 and a cathode of another diode 26. As noted above, all voltages in the circuit of Fig. 1 are presumed to be non-negative. Therefore, the alleged auxiliary voltage source, i.e., diode 27 is ***not*** opposite to a voltage of the voltage source.

Accordingly, Takizawa does not teach an auxiliary voltage source connected in parallel to the coil, the voltage of the auxiliary voltage source being opposite to that of the voltage source as set forth in claim 1.

Third Clear Error

In connection with the rejection of claim 1, the Examiner states "Takizawa does not explicitly disclose the electronic switches are driven simultaneously into the closing state." The Examiner then states:

> Howell discloses a voltage-dependent resistor including a plurality of electronic switches (30 and 70) connected in series in the form of a cascade, said the electronic switches bridging a voltage-dependent device (42), wherein the electronic switches are driven simultaneously into closing state by a control circuit (36) via signal line (38) (see fig. 5). However, Takizawa's solution works properly only with DC power supply. If the solenoid requires AC power supply Takizawa's solution should be modified with Howell's solution which capable of driving AC current. In the Howell's circuit, the combination of two electronic switches (30 and 70 in fig. 5) can efficiently control the AC current while both electronic switches are driven by the same control signal (38). When the circuit of Takizawa may be modified by replacing each one of driving transistor (28 and 30) directionally switch according to Howell. In the obtained circuit each of the electronic switches of Howell bridging a series resistor. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the solenoid drive circuit of Takizawa because suggested of modification of Takizawa according to Howell will allow driving the solenoid by AC current when the solenoid requires AC current.

As is evident from the foregoing, the rejection is premised on modifying the solenoid drive circuit of Takizawa to allow for driving the solenoid with AC current.

Takizawa, however, discloses an electromagnetic solenoid drive apparatus for use in a vehicle for turning on an electromagnetic solenoid from a battery every time when a command switch is turned on. Modifying the solenoid drive apparatus as proposed by the Examiner would render such device totally unsuitable for use in its intended manner (i.e., in a car that operates on a DC voltage). MPEP §2153.01(V) provides the following.

> **THE PROPOSED MODIFICATION CANNOT RENDER THE PRIOR ART UNSATISFACTORY FOR ITS INTENDED PURPOSE**
>
> If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

Modifying the system of to operate in an AC system renders the device unsatisfactory for its intended purpose, namely for controlling a solenoid of a vehicle in a 12 volt DC system. That is, it would no longer be usable with a battery in a vehicle that does not supply AC current. Accordingly, the modification of Takizawa based on Howell as proposed by the Examiner cannot render claim 1 obvious.

In view of the above, reversal of the rejection of claim 1 is respectfully requested.

B. Rejection of claims 2 and 3

Claims 2 and 3 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa in view of Dettmann and Howell, and further in view of Yiannoulos.

Claims 2 and 3 depend from claim 1 and thus can be distinguished from Takizawa, Dettmann and Howell for at least the same reasons discussed above with

respect to claim 1. Further, Yiannoulos has not been found to make up for the deficiencies of and, thus, claim 1 (and therefore claims 2 and 3) is distinguishable over Takizawa, Dettmann, Howell and Yiannoulos.

C. Rejection of claims 6 and 9

Claims 6 and 9 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa in view of Dettmann. The above comments with respect to claim 1 are also applicable to claim 6. Accordingly, claim 6 is distinguishable from Takizawa in view of Dettmann for at least the same reasons discussed above with respect to claim 1.

D. Rejection of claims 7 and 8

Claims 7 and 8 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa in view of Dettmann, and further in view of Yiannoulos.

Claims 7 and 8 depend from claim 6 and thus can be distinguished from Takizawa and Dettmann for at least the same reasons discussed above with respect to claim 6.

VIII. Conclusion

In view of the foregoing, it is respectfully submitted that the claims are patentable over the applied art and that the rejections advance by the Examiner should be reversed.

Respectfully submitted,

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Claims Appendix

1. A quick-acting valve, comprising:

a valve opening,

a valve member movable relative to the valve opening for controlling flow through the valve opening,

a coil supplied by a voltage source for effecting movement of the valve member relative to the valve opening,

a voltage-dependent resistor (33) provided between the voltage source and the coil, and

an auxiliary voltage source connected in parallel to the coil, the voltage of said auxiliary voltage source being opposite to that of said voltage source,

wherein the voltage-dependent resistor includes a plurality of electronic switches connected in series in the form of a cascade, said electronic switches each bridging a series resistor and being driven into the closing state when an input voltage applied by said voltage source falls below a given switching voltage whereby the electronic switches are driven simultaneously into the closing state.

2. The quick-acting valve according to claim 1, wherein the auxiliary voltage source comprises at least one Zener diode.

3. The quick-acting valve according to claim 1, wherein the auxiliary voltage source is connected in series with a rectifier diode and in parallel to the coil.

5. The quick-acting valve according to claim 1, wherein the switching voltage is determined by a reference voltage path.

6. A quick-acting valve comprising:

a valve opening,

a valve member movable relative to the valve opening for controlling flow through the valve opening,

a coil supplied by a voltage source for effecting movement of the valve member relative to the valve opening,

a voltage-dependent resistor provided between the voltage source and the coil, and

an auxiliary voltage source connected in parallel to the coil, the voltage of said auxiliary voltage source being opposite to that of said voltage source,

wherein the voltage-dependent resistor includes a plurality of electronic switches connected in series in the form of a cascade, said electronic switches each bridging a series resistor and being driven into the closing state when an input voltage applied by said voltage source falls below a given switching voltage, and

wherein each electronic switch is switched by an auxiliary transistor.

7. The quick-acting valve according to claim 6, wherein the auxiliary voltage source comprises at least one Zener diode.

8. The quick-acting valve according to claim 6, wherein the auxiliary voltage source is connected in series with a rectifier diode and in parallel to the coil.

9. The quick-acting valve according to claim 6, wherein the switching voltage is determined by a reference voltage path.

Evidence Appendix

None.

Related Proceedings Appendix

None.